WHAT IS CLAIMED IS:

1. A method of scanning gray scale image with a color scanner, wherein the gray scale image includes a plurality of gray scale pixels, the method comprising:

downloading three group of gamma table data from a host terminal linked to the color scanner, wherein each group of gamma tables includes a plurality of index addresses, each index address corresponds to a storage space, and each storage space holds a plurality of color space conversion values related to color-to-gray scale conversion;

scanning a plurality of gray scale pixels to obtain digital data after conversion, wherein the digital data includes three digitized primary color brightness values belonging to the gray scale pixels and each digitized primary color brightness value corresponds to a group of gamma table data;

comparing the three digitized primary color brightness value obtained by scanning the gray scale pixels and the index addresses corresponding to the three groups of gamma tables inside the color scanner;

retrieving the three color space conversion values belonging to the gray scale pixels from the storage spaces that correspond to the index addresses if the three digitized primary color brightness values obtained by gray scale scanning are identical to the digitized primary color brightness value in the index addresses;

transmitting the three color space conversion values belonging to the gray scale pixels to the host terminal; and

conducting an addition of all three color space conversion values belonging to the gray scale pixel inside the host terminal to obtain gray scale brightness values that relate to the gray scale pixels.

2. The method of claim 1, wherein each color space conversion value is obtained by multiplying a primary color coefficient by a preset primary color brightness value.

3. The method of claim 2, wherein the primary color coefficient is a fixed constant related to color-to-gray scale conversion.

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4. The method of claim 2, wherein number of storage spaces inside a gamma table is related to a strength level of the preset primary color brightness value.

5. The method of claim 4, wherein each strength level occupies one storage space.

6. The method of claim 4, wherein the strength level of the preset primary color brightness value is modified according to the setting inside the host terminal.

7. The method of claim 1, wherein each index address corresponds to one storage space.

8. The method of claim 1, wherein the three digitized primary color brightness values within the digital data are gamma-corrected digitized primary color brightness values.

9. The method of claim 1, wherein the three digitized primary color brightness values within the digital data are digitized primary color brightness values without any gamma correction.

10. The method of claim 1, wherein the host terminal performs two addition operations to add all three color space conversion values.

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11. A gray scale image scanning system inside a color scanner for transferring gray scale brightness values to a color scanner linked host terminal, wherein the gray scale image includes a plurality of gray scale pixels, the gray scale scanning system comprising:

a memory unit inside the color scanner for holding three groups of gamma table data downloaded from the host terminal, wherein each gamma table includes a plurality of index addresses, each index address corresponds to a storage space, and each storage space holds a plurality of color space conversion values that relates to color-to-gray

5   scale conversion;

a buffer within the color scanner coupled to the memory unit for holding at least some of the digital data scanned from gray scale pixels, wherein the digital data contains three digitized primary color brightness values and each digitized primary color brightness value corresponds to a group of gamma tables;

10   a control device within the color scanner coupled to the memory unit and the buffer for comparing the three digitized primary color brightness values of the scanned gray scale pixels with corresponding index addresses of the three groups of gamma tables, retrieving the color space conversion values of scanned gray scale pixels from the storage spaces corresponding to the index addresses and transferring the color space

15   conversion values to the host terminal; and

an adder unit inside the host terminal for performing addition of the color space conversion values of the scanned gray pixels to produce gray scale brightness values related to the gray scale pixels.

12. The system of claim 11, wherein the color scanner further includes a gamma

20   correction circuit for conducting a gamma correction of the three digitized primary color brightness values within the digital data.

13. The system of claim 11, wherein the control device includes an application-specific integrated circuit.

14. The system of claim 11, wherein the adder unit includes a driving program inside the host terminal.

15. The system of claim 11, wherein each color space conversion value is formed by multiplying a primary color coefficient by a preset primary color brightness value.

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